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EXAMINER

LUPINO, GINA M

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3652

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/786,068	Applicant(s) NOZAWA ET AL.	
	Examiner Gina M. Lupino	Art Unit 3652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 12-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 12-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 November 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

I. Claims Cancelled

1. The Examiner acknowledges applicant has cancelled claims 8-11. Thus, the rejection below concerns the remaining and new claims.

II. Claim Objections

1. Claim 13 is objected to because it contains a grammatical error. Claim 13 states, "detects an absolute position of the holding portion to the second process chamber", but should state, "detects an absolute position of the holding portion with respect to the second process chamber".

III. Claim Rejections - 35 USC § 112

The following is a quotation from the relevant paragraphs of 35 U.S.C. 112:

(2) The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 11 recites both an apparatus and the method steps of using the apparatus. Specifically, claim 11 is recites structural elements of a substrate processing apparatus, in addition to method steps of using it. Thus, claim 11 is ambiguous and rejected under 35 U.S.C. 112, second paragraph. See MPEP 2173.05(p)(II).

IV. Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-7, 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over SUNDAR (6,327,517) in view of KROEKER (U.S. Patent Publication No. 2002/0031420).

1.1. With respect to claims 1, 12, SUNDAR discloses a substrate processing apparatus with:

- 1.1(a) a vacuum pressure transfer chamber 140 in which a linear transfer path is provided;
- 1.1(b) a first process chamber 160 connected to the transfer chamber via a valve and in which a first process disposes a substrate;
- 1.1(c) a second process chamber 165 connected to the transfer chamber and disposed in the vicinity of the first process chamber, and in which a second process disposes the substrate that has finished the first process;
- 1.1(d) a transfer mechanism 145, connected movably to the transfer path and which carries the substrate between the process chambers;
- 1.1(e) a detecting mechanism 230 stationed at a carry-in route for the substrate to be conveyed to a table in the second chamber via a valve thereof, which detects a relative position between the substrate to be conveyed by the transfer mechanism and the table, and
- 1.1(f) a correcting mechanism that corrects displacement of the relative position based on a result of the detection by the detecting mechanism with the transfer mechanism, and
- 1.1(g) With respect to claim 12,
 - 1.1(g)(i) the first and second chambers are on both sides of the transfer chamber and opposite to one another via the transfer chamber, where the second

chambers are in the vicinity of the first chambers, and in which a second process disposes on the substrate that has finished the first process, and 1.1(g)(ii) the transfer mechanism includes two substrate supporters and carries the substrate into and out of the chambers.

1.2. With respect to claims 2-6, 13-17, SUNDAR discloses the apparatus discussed above where:

1.2(a) With respect to claims 2 and 13, the transfer mechanism has a holding portion that holds the substrate, and the detecting mechanism detects an absolute position of the holding portion to the second process chamber. See Figure 1 and column 2, lines 60-67, and column 3, lines 1-27.

1.2(b) With respect to claims 3 and 14, a storage unit 170 that stores data about the proper position of the holding portion, and correcting mechanism compares substrate position data and a set of predetermined coordinates to correct position displacement.

1.2(c) With respect to claims 4 and 15, where the detecting mechanism has at least two photosensors provided on the carry-in route of the substrate by said transfer mechanism, and where an interval between the two photosensors is smaller than a diameter of the substrate. See column 5, lines 54-58.

1.2(d) With respect to claims 5 and 16, where the carry-in route of the substrate by the transfer mechanism extends linearly, and where the photosensors are arranged in a direction orthogonal to the carry-in route. See Figures 1, 3f.

1.2(e) With respect to claims 6 and 17, the detecting mechanism has a transmission-type photosensor.

1.3. With respect to claim 7, SUNDAR discloses a substrate processing method of a substrate processing apparatus including:

1.3(a) a vacuum pressure transfer chamber 140 in which a linear transfer path is provided;

- 1.3(b) a first process chamber 160 connected to the transfer chamber via a valve and in which a first process disposes a substrate;
- 1.3(c) a second process chamber 165 connected to the transfer chamber and disposed in the vicinity of the first process chamber, and in which a second process disposes the substrate that has finished the first process; and
- 1.3(d) a transfer mechanism 145, connected movably to the transfer path and which carries the substrate between the chambers, said method including:
 - 1.3(d)(i) applying the first process on the substrate in the first chamber;
 - 1.3(d)(ii) carrying the substrate out of the first chamber and then into the second chamber by the transfer mechanism;
 - 1.3(d)(iii) detecting a relative position between the substrate conveyed to a table in the second chamber and the table, and
 - 1.3(d)(iv) correcting displacement of the relative position based on a result of the detecting step with the transfer mechanism.
- 1.4. However, SUNDAR fails to teach the valve is a gate valve, but KROEKER teaches a gate valve may be used in lieu of a slit valve in a wafer processing system. Therefore, it would have been obvious to one of ordinary skill in the art to substitute the slit valve of SUNDAR with the gate valve of KROEKER in order to seal the chambers separately from one another.

V. Response to Applicant's Arguments

Applicant's arguments entered February 7, 2007 have been fully considered.

- 1. Applicant's arguments with respect to the rejection of claim 1 under 35 U.S.C. 102(e) are not persuasive.**

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1.1. With respect to claim 1, Applicant argues the cited reference does not teach or suggest the detecting or mechanism of amended claim 1, or a transfer chamber maintained under vacuum condition, in which a linear transfer path is provided, that is connected to a process chamber via a gate valve, connected to the transfer path. Thus, the Examiner has provided the SUNDAR and KROEKER references, as discussed above, which teach and suggest these limitations of amended claim 1.

2. Applicant's arguments with respect to the rejection of claims 1-3 and 7-8 under 35 U.S.C. 103(a) are not persuasive.

2.1. With respect to claims 1-3 and 7-8, Applicant argues HETEL does not teach the wafer's displacement compensation is carried out in the vacuum chamber and not in the processing chamber, and the detecting mechanism does not provide displacement compensation during post-transfer real processing, first and second chambers, or a transfer chamber in which a linear path is provided, as required by amended claim 1. Thus, the Examiner has provided the SUNDAR and KROEKER references, as discussed above, which teach and suggest these limitations of amended claim 1.

VI. Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gina M. Lupino whose telephone number is (571) 272-6557. The examiner can normally be reached on 9:00am - 5:00pm EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene O. Crawford can be reached on (571) 272-6911. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.
3. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).
4. GML


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